What is claimed is:

1. A pressure sensor for measuring fluid pressure, said pressure sensor including:

a first body member;

a second body member; and

a radially tensioned flexible diaphragm disposed between said first body member and said second body member, said first body member and said diaphragm forming a first fluid chamber, said second body member and said diaphragm forming a second fluid chamber;

said first body member being formed from a first material having a first coefficient of thermal expansion, said diaphragm being formed from a second material having a second coefficient of thermal expansion, wherein said first coefficient of thermal expansion is not greater than said second coefficient of thermal expansion by more than approximately 0.0000015 inch/inch/°F.

2. The pressure sensor of claim 1 wherein said second coefficient of thermal expansion of said second material that forms said diaphragm is approximately 0.0000060 inch/inch/°F.

3. The pressure sensor of claim 1 wherein said second material that forms said diaphragm comprises a precipitation hardening material.

4. The pressure sensor of claim 3 wherein said precipitation hardening material comprises: C, up to about 0.07 wt%; Mn, up to about 1.00 wt%; P, up to about 0.040 wt%; S, up to about 0.030 wt%; Si, up to about 1.00 wt%; Cr, 15.00-17.50 wt%; Ni, 3.00-5.00 wt%; Cu, 3.00-5.00 wt%; Nb plus Ta, 0.15-0.45 wt%; and the remainder Fe.

5. The pressure sensor of claim 1 wherein said first coefficient of thermal expansion of said first material that forms said first body member is from approximately 0.0000056 inch/inch/°F to approximately 0.0000064 inch/inch/°F.

6. The pressure sensor of claim 1 wherein said first material that forms said first body member is a precipitation hardening material.

7. The pressure sensor of claim 1 wherein said first material that forms said first body member comprises: C, up to about 0.08 wt%; Mn, up to about 1.00 wt%; P, up to about 0.04 wt%; S, up to about 0.03 wt%; Si, up to about 1.00 wt%; Cr, 11.50-14.50 wt%; Al, 0.10-0.30 wt%; and the remainder Fe.

8. The pressure sensor of claim 1 wherein said first material that forms said first body member comprises: C, up to about 0.12 wt%; Mn, up to about 1.00 wt %; P, up to about 0.040 wt%; S, up to about 0.030 wt%; Si, up to about 1.00 wt%; Cr, 16.0-18.0 wt%; Ni, up to about 0.50 wt%; and the remainder Fe.

9. The pressure sensor of claim 1 wherein said first material that forms said first body member comprises: C, up to about 0.09 wt %; Mn, up to about 1.00 wt %; P, up to about 0.040 wt%; S, up to about 0.030 wt%; Si, up to about 1.00 wt%; Cr, 16.00-18.00 wt%; Ni, 6.50-7.75 wt%; Al, 0.75-1.50 wt%; and the remainder Fe.

10. The pressure sensor of claim 1 wherein said first material that forms said first body member comprises: C, up to about 0.07 wt%; Mn, up to about 1.00 wt%; P, up to about 0.040 wt%; S, up to about 0.030 wt%; Si, up to about 1.00 wt%; Cr, 15.00-17.50 wt%; Ni, 3.00-5.00 wt%; Cu, 3.00-5.00 wt%; Nb plus Ta, 0.15-0.45 wt%; and the remainder Fe.

11. The pressure sensor of claim 1 wherein said first material that forms said first body member comprises: Mo, 16 wt%; Cr, 16 wt%; Fe, 5wt%; W, 4 wt%, and the remainder Ni.

12. The pressure sensor of claim 1 wherein said first coefficient of thermal expansion of said first material is not greater than said second coefficient of thermal expansion of said second material by more than approximately 0.0000004 inch/inch/°F.

13. The pressure sensor of claim 1 wherein said first coefficient of thermal expansion of said first material is not greater than said second coefficient of thermal expansion of said second material by more than approximately 0.0000002 inch/inch/°F.

14. A pressure sensor for measuring fluid pressure, said pressure sensor including:

a first body member;

a second body member; and

a radially tensioned flexible diaphragm disposed between said first body member and said second body member, said first body member and said diaphragm forming a first fluid chamber, said second body member and said diaphragm forming a second fluid chamber;

said first body member and said second body member being formed from a ferromagnetic material such that said first and second body members shield said diaphragm from magnetic fields which may otherwise cause movement of said diaphragm resulting in an inaccurate measurement of the fluid pressure applied to said diaphragm.

15. The pressure sensor of claim 14 wherein said ferromagnetic material comprises: C, up to about 0.08 wt%; Mn, up to about 1.00 wt%; P, up to about 0.04 wt%; S, up to about 0.03 wt%; Si, up to about 1.00 wt%; Cr, 11.50-14.50 wt%; Al, 0.10-0.30 wt%; and the remainder Fe.

16. The pressure sensor of claim 14 wherein said ferromagnetic material comprises: C, up to about 0.12 wt%; Mn, up to about 1.00 wt %; P, up to about 0.040 wt%; S, up to about 0.030 wt%; Si, up to about 1.00 wt%; Cr, 16.0-18.0 wt%; Ni, up to about 0.50 wt%; and the remainder Fe.

17. The pressure sensor of claim 14 wherein said ferromagnetic material comprises: C, up to about 0.09 wt %; Mn, up to about 1.00 wt %; P, up to about 0.040 wt%; S, up to about 0.030 wt%; Si, up to about 1.00 wt%; Cr, 16.00-18.00 wt%; Ni, 6.50-7.75 wt%; Al, 0.75-1.50

wt%; and the remainder Fe.

18. The pressure sensor of claim 14 wherein said ferromagnetic material comprises: C, up to about 0.07 wt%; Mn, up to about 1.00 wt%; P, up to about 0.040 wt%; S, up to about 0.030 wt%; Si, up to about 1.00 wt%; Cr, 15.00-17.50 wt%; Ni, 3.00-5.00 wt%; Cu, 3.00-5.00 wt%; Nb plus Ta, 0.15-0.45 wt%; and the remainder Fe.

19. A method of forming a pressure sensor comprising the steps of:

providing a first body member and a second body member;

preheat-treating said first body member and said second body member;

disposing a flexible diaphragm formed from an annealed precipitation hardening material between said first and second body members;

attaching said body members to said diaphragm such that a first fluid chamber is formed between said first body member and said diaphragm and a second fluid chamber is formed between said second body member and said diaphragm; and

heat treating said first and second body members and said diaphragm to tension said diaphragm.

20. The method of claim 19 wherein said first and second body members are heated to approximately 900°F or higher during said preheat-treating step.

21. The method of claim 19 wherein said first and second body members are heat treated to approximately 1000°F during said preheat-treating step.

22. The method of claim 19 wherein said first and second body members and said diaphragm are heated to approximately 900°F during said heat treating step.

23. The method of claim 19 wherein said first and second body members are formed from a precipitation hardening material.

24. The method of claim 23 wherein said precipitation hardening material that forms said first and second body members comprises: C, up to about 0.07 wt%; Mn, up to about 1.00 wt%; P, up to about 0.040 wt%; S, up to about 0.030 wt%; Si, up to about 1.00 wt%; Cr, 15.00-17.50 wt%; Ni, 3.00-5.00 wt%; Cu, 3.00-5.00 wt%; Nb plus Ta, 0.15-0.45 wt%; and the remainder Fe.

25. The method of claim 23 wherein said precipitation hardening material that forms said first and second body members comprises: C, up to about 0.09 wt %; Mn, up to about 1.00 wt %; P, up to about 0.040 wt%; S, up to about 0.030 wt%; Si, up to about 1.00 wt%; Cr, 16.00-18.00 wt%; Ni, 6.50-7.75 wt%; Al, 0.75-1.50 wt%; and the remainder Fe.

26. The method of claim 19 wherein said precipitation hardening material of said diaphragm comprises: C, up to about 0.07 wt%; Mn, up to about 1.00 wt%; P, up to about 0.040 wt%; S, up to about 0.030 wt%; Si, up to about 1.00 wt%; Cr, 15.00-17.50 wt%; Ni, 3.00-5.00 wt%; Cu, 3.00-5.00 wt%; Nb plus Ta, 0.15-0.45 wt%; and the remainder Fe.

27. A pressure sensor made according to the method of claim 19, said pressure sensor adapted to compensate for Span thermal error.

28. A pressure sensor for measuring fluid pressure, said pressure sensor including:

a first metal body member and a second metal body member, said first and second body members being heat treated to greater than 900°F;

a flexible metal diaphragm disposed between said first and second body members, said diaphragm being formed from a precipitation hardening material, said first body member and said diaphragm forming a first fluid chamber, and said second body member and said diaphragm forming a second fluid chamber.

29. The pressure sensor of claim 28 wherein said diaphragm is in an annealed condition.

30. The pressure sensor of claim 28 wherein said diaphragm is heat treated to approximately 900°F.